

DESCRIPTIONS OF TWO SPECIES OF EXTINCT TORTOISES, ONE NEW.

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Testudo atascosæ sp. nov.

⁴⁸ In the collection of the Academy of Natural Sciences of Philadelphia the writer has found certain bones which belong apparently to an undescribed species of the genus *Testudo*. These bones are accompanied by a label to this effect: "Miocene, E. W. Marnock, Atascosa county, Texas." How this material came to the Academy there is no record. Mr. Witmer Stone has suggested that it may have been derived from Dr. Leidy's collection; we know also that Mr. Marnock collected in Texas for Prof. Cope, but beyond this there is no indication that these bones were ever in the hands of either Prof. Cope or Dr. Leidy.

These remains consist of the left half of the anterior lobe of the plastron and the greater portion of the left side of the hinder lobe. Figures of these parts are here presented.



Fig. 1.



Fig. 2.

The species has been one of considerable size. The xiphiplastron has had a length of about 110 mm.; the whole posterior lobe a length approximately of 120 mm. The anterior lobe has had about the same length. We may perhaps safely estimate 200 mm.

for the length of the bridge, thus making the plastron 440 mm. long.

The anterior lobe (fig. 1) has been close to 200 mm. in width. The interclavicle, or entoplastron, has had a width of 100 mm.; its length has probably been about 80 mm., but its hinder border is missing. The gular scutes encroach on its anterior border. A broad rounded lip has projected beyond the gulo-humeral sulci about 28 mm. It has had a width of 80 mm., and is not notched in front. The whole border of the anterior lobe is acute, through the beveling off of the upper side. Fig. 2 is a section through the lip



Fig. 3.



Fig. 4.



Fig. 5.

at the midline, and shows this beveling. The greatest thickness at the lip is 23 mm.; at a point halfway to the axillary notch this thickness has been reduced only to 21 mm.; near the notch it is about 10 mm. Superiorly the lip extends back about 50 mm. From the summit of the lip two ridges, with a shallow valley between them, run toward the axillary notch, diverging gently. There has evidently been no thoracic excavation beneath the lip behind. Such an excavation is found in *T. laticaudata*, *T. hexagonata* and in the living *T. polyphemus*.

The posterior lobe (fig. 3) has been broadly notched behind, the notch having a width of about 90 mm. and a depth of 35 mm. The terminal lobules are directed outward and upward, somewhat

carlike, somewhat as they are in *T. polyphemus*, but not so narrow as they are in the latter. From the midline behind, the border is acute around the lobules and as far forward as about 35 mm. behind the hypo-xiphial suture. Here it rather suddenly becomes broadly rounded, as shown by the cross-section (fig. 4). At the suture mentioned the thickness of the bone is 30 mm. The wall thus formed continues backward, descending somewhat, and meets the midline 15 mm. or more in front of the bottom of the notch. Fig. 5 represents a section through one of the lobules in a direction from its tip toward the centre of the hinder lobe. The greatest thickness is 22 mm.

The femoro-anal sulcus runs from the midline outward, so as to make the outer end of the anal scute somewhat wider than the mesial end. Antero-posteriorly, at the middle of its width, the scute is 40 mm. long.

It is probable that the deposits in which this tortoise was found belong to the Pliocene.

***Terrapene eurypygia* (Cope).**

This species was described by Prof. Cope in 1869 (*Trans. Amer. Philos. Soc., XIV, new series*, p. 124), the type specimen being a small portion of the rear of the carapace. It was regarded as distinct from the common *Terrapene* of the region on account of the apparently greater width of the vertebral scutes. This seemed to be indicated by the contact of the last vertebral with the ninth marginal scute. No figure was made of the specimen, and nothing in addition was afterward published. The type has been examined by the writer.

In 1899 (*Jour. Phila. Acad.*, XI, pp. 193-267) Prof. Cope described various remains of the vertebrates which had been collected by Messrs. Dixon and Mercer in the Port Kennedy cave. Among other things there were three tortoises found, viz., *Clemmys insculpta*, *C. percrassa* and *Toxaspis (Terrapene) anguillulata*. There belonged to the collection, however, another box-tortoise which was not mentioned by Cope, and was perhaps not seen by him. Through the kindness of the management of the Academy this has been put in my hands for examination. These remains consist of almost the whole of the plastron and of various fragments of the carapace and the right humerus.

An examination of these bones showed that they belonged either

to *Terrapene carolina* or to a species closely related to it. It was soon observed that the ninth marginal comes into contact with the last vertebral (fig. 6), a condition which recalled Cope's *Cistudo eurypygia*, and a close comparison proved that they are identical, one of the portions of the Port Kennedy specimen being fortunately the right margin of the rear of the shell from near the midline to the hinge. The question therefore arises whether or not the new material confirms Cope's view of the distinctness of the species.

The unusual width of the fourth and fifth vertebral scutes is proved by Cope's type and confirmed by the Port Kennedy specimen. Belonging to the latter is a fragment of the carapace pre-



Fig. 6.

senting a part of the nuchal, a part of the first and second costals, and the first and second peripherals (fig. 7). In *T. carolina* the first vertebral does not usually encroach on the first peripheral bone; in the fragment alluded to above the vertebral reaches over on the first peripheral nearly to the sulcus between the first and second marginals. The anterior vertebral must have been 34 mm. wide, about 6 mm. wider than in a specimen of *T. carolina* at hand. We must conclude that the other vertebrae were wider than they commonly are in *T. carolina*. An estimate makes it probable that the fourth vertebral in *T. eurypygia*, type, was about 42 mm. wide.

A comparison of the plastron of the Port Kennedy specimen makes it evident that this portion of the shell was almost everywhere thicker than in the corresponding parts of the living species. Nearly the whole of the border of the anterior lobe is thicker and with a more rounded edge. The hypoplastron of *T. carolina* at the hinge is 3 mm. thick; that of *T. eurypygia*, 4 mm. The thickness of the sloping, scute-covered border of the hinder lobe, at the junc-

tion of hypoplast and xiphiplast, is in *T. carolina* 5 mm. thick; in *T. eurypygia*, 7 mm. thick. This border is also wider in the latter species than in any specimens of the living species at hand.

No doubt all or nearly all the characters appealed to for the separation of Cope's species are more or less variable, but it appears unlikely that there should be so many deviations from the normal in one or two specimens. An examination of eighteen specimens of *T. carolina* revealed the fact that in one the fifth vertebral was in contact with the ninth marginal on both sides, while in another specimen these scutes were in contact on one side. In both cases,

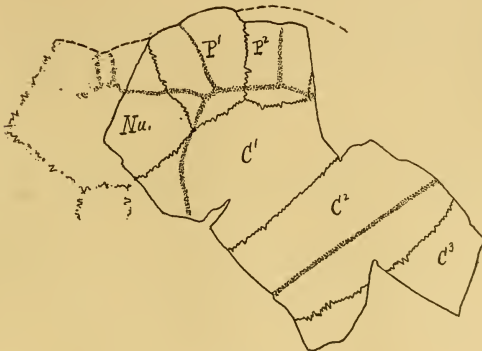


Fig. 7.

however, some of the scutes in the region were somewhat abnormal in their development. Leaving this out of view, we have the contact in about eight and one-third per cent. of cases. It appears unlikely that the only two specimens that we have of the fossil species would belong among this small minority.

In the Port Kennedy specimen the anterior lobe is 51 mm. long, and 68 mm. wide at the hinge. In front of the hinge the width increases to 72 mm. The posterior lobe has had a length of at least 80 mm.

Fig. 6 presents a view of the fragment of the rear of the plastron of the Port Kennedy specimen, the interrupted lines having been added in order to show the position of the fragment. The

crossing of the sulci on the upper portion of the drawing indicates the presence of a small scute cut off from the fifth vertebral, a slight abnormality. In fig. 6 the peripherals are numbered, but not the marginal scutes. The ninth scute is the one lying partly on the ninth peripheral and partly on the tenth. In both figures the bony sutures are represented by zigzag lines, while the sulci between the scutes are shown by dotted lines.